CONTROL OF VIRAL GASTROENTERITIS OUTBREAKS IN CALIFORNIA LONG-TERM CARE FACILITIES

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Division of Communicable Disease Control
In Conjunction with Licensing and Certification

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Introduction

Outbreaks of gastroenteritis in long-term care facilities (LTCFs) are not uncommon. Viruses cause most outbreaks of gastroenteritis, and they are almost always transmitted from person to person (including residents, staff, visitors and volunteers), and occasionally by contaminated food. These outbreaks can be detected early by recognizing the typical symptoms of illness, and can be controlled by taking specific steps to prevent the virus from being transmitted from person to person. When appropriate steps are not taken, outbreaks can continue for weeks with at least half the residents and many of the staff becoming ill, with some residents hospitalized and occasionally dying from dehydration and other complications of vomiting and diarrhea.

The California Department of Health Services (CDHS) Division of Communicable Disease Control developed these recommendations in consultation with the Licensing and Certification Program. This information is intended to be advisory only and was developed to assist facility infection control committees in the development of a rational approach to the control of viral gastroenteritis outbreaks in LTCFs. A comprehensive guide to the prevention and control of gastroenteritis in LTCFs is available at http://www.dhs.ca.gov/ps/dcdc/disb/disbindex.htm.

What causes viral gastroenteritis in LTCFs?

Gastroenteritis is inflammation of the stomach and intestines. This usually results in vomiting and/or diarrhea. Outbreaks of viral gastroenteritis in LTCFs are almost always due to a group called caliciviruses, which include Norwalk and related viruses. In the United States these are usually called Norwalk-like viruses (NLVs). Bacteria such as *Salmonella, Shigella,* or *Campylobacter* also occasionally cause gastroenteritis in LTCFs, but are more likely to be foodborne and the patterns of illness that occur are usually different from viral gastroenteritis.

What are the signs and symptoms of viral gastroenteritis?

The main symptoms of viral gastroenteritis are vomiting and diarrhea. Vomiting is usually a prominent symptom but may be infrequent or absent. Diarrhea tends to be watery, short-lived and less severe than that which results from gastroenteritis caused by bacteria. The affected person may also have headache, fever (usually low-grade, chills, and abdominal cramps ("stomach ache"). These symptoms can occur in various combinations during an outbreak. When viral gastroenteritis occurs in winter it is often referred to as “intestinal influenza” or “stomach flu”. Illness begins between one to two days following exposure to a resident or employee who is ill or incubating the infection. Unless complicated by underlying illness, age, or dehydration, the illness is generally mild and of short duration (one to two days), although some individuals may continue to feel weak. Immunity occurs following infection but lasts only a short time, so that everyone is at risk of becoming infected again, from the same virus, five or six months later.

How is viral gastroenteritis spread?

Norwalk-like viruses are spread when material contaminated by stool or vomitus from an infected person is ingested. NLVs are extremely infectious. It takes only a few particles, so small that they cannot be seen with an ordinary microscope, to cause illness. Millions of particles are present in the stool or vomitus of someone who is sick. Excretion of virus in stool begins a few hours before the onset of symptoms and reaches a maximum 24–72 hours after exposure. The virus can continue to be present in the stool of infected persons for a week or more, even after they recover or even if they have never been sick. In a healthcare facility the virus is spread primarily through contamination of the hands of persons who are ill. It is impossible to be sure that hand washing eliminates the virus from the hands of someone who has diarrhea. Ill healthcare workers dispensing medication have been responsible for person-to-person transmission in some outbreaks.

Vomiting will also suspend viral particles in the air, resulting in contamination of the environment. NLVs can remain infectious on environmental surfaces for many days and are relatively resistant to disinfection, heat, and cold.

Can viral gastroenteritis be spread by food and water?

NLVs can also be transmitted by food and water. This is uncommon in LTCFs where transmission is usually from person to person. Food preparers or handlers who have viral gastroenteritis may contaminate food, especially if they do not wash their hands regularly after using the bathroom or do not wear gloves while handling food. Cold foods such as salad and sandwiches have been a source for outbreaks. Shellfish may be contaminated by sewage, but are unlikely to be served in LTCFs. Drinking water can also be contaminated due to faulty plumbing and be a source of these viruses.

How is viral gastroenteritis diagnosed?

Viral gastroenteritis cannot be diagnosed by traditional stool cultures or examination of stool for ova and parasites. NLVs can be identified by polymerase chain reaction (PCR), which is available at CDHS and some large local health departments. This requires fresh (unfrozen) stool. PCR can remain positive for at least a week after the symptoms have resolved. Antibody testing is possible but requires convalescent sera (typically collected about four weeks after onset of illness). While PCR can be completed within one day of receiving a specimen, decisions to institute control of a possible outbreak should not be delayed while waiting for results.

How can an outbreak of viral gastroenteritis be identified?

Facilities should establish and maintain a program of surveillance for viral gastrointestinal disease. An outbreak of viral gastroenteritis should be suspected when two or more residents and/or staff have vomiting and diarrhea with onset within one to two days. Vomiting, often projectile, is present in at least half of those ill. Other symptoms may include nausea with or without vomiting and low grade fever

How is an outbreak of viral gastroenteritis controlled?

Interrupting person-to-person transmission controls the outbreak of viral gastroenteritis. There is probably little that can be done to prevent the initial introduction of the virus, since an infected healthcare worker or visitor may be shedding the virus even before they are ill, or may never be symptomatic. The following recommendations may assist facility personnel in controlling an outbreak of viral gastroenteritis

A. Limit transmission when initial cases of viral gastroenteritis are suspected

1. Each nursing unit should immediately report any resident(s) or staff member(s) with symptoms of viral gastroenteritis to the infection control practitioner or the Director of Nurses. New cases should be recorded daily using a case log. (See attached)
2. Notify the medical director.
3. Confine symptomatic residents to their rooms.
4. Request symptomatic staff, visitors and volunteers to stay home until symptom–free for 48-72 hours.
5. Discontinue "floating" staff from the affected unit to non-affected units, if possible.
6. Request symptomatic family members to avoid visitation.
7. Notify the local health department and the Licensing and Certification district office with jurisdiction over your facility. Consult with the local health department about laboratory testing.

B. Institute control measures when a viral gastroenteritis outbreak is suspected without waiting for diagnostic confirmation

1. Minimize movement of residents. Residents should not be moved from an affected to an unaffected nursing unit. The value in moving asymptomatic residents who have been exposed (e.g., to a symptomatic roommate) is uncertain since they may already be infected. Continue to confine symptomatic residents to their rooms.
   a. Maintain the same staff to resident assignments, if possible.
   b. Limit staff from moving between affected and unaffected units.
   c. Dedicate the use of patient-care equipment to a single resident or among similarly symptomatic residents. If the use of common equipment or items is unavoidable, then adequately clean and disinfect equipment before use for another resident.

2. Exclude non-essential personnel from affected units.

3. In addition to Standard Precautions:
   a. Wear gloves when entering the room.
   b. Remove gloves after contact with the ill resident and before contact with an unaffected resident in the same room. Remove gloves before leaving the resident's room and wash hands with soap and water in room immediately.

After glove removal and handwashing, ensure that hands do not touch potentially contaminated environmental surfaces or items in the resident's room.

c. Wear a gown when entering the room. Change gowns between contacts with roommates. Remove gown before leaving the resident's environment. After gown removal, ensure that clothing does not contact potentially contaminated environmental surfaces.

4. Consider use of antiemetics for patients with vomiting.

5. Cancel or postpone group activities until ill individuals are asymptomatic for at least 48 hours.

6. Limit new admissions until the incidence of new cases has reached zero. If new admissions are necessary, admit resident to an unaffected unit or to a unit that has had no new cases for at least two days.

7. Clean and disinfect vomit and fecal spillages promptly.

8. Increase the frequency of routine ward, bathroom and toilet cleaning. Particular attention should be given to cleaning objects that are frequently handled such as faucet and door handles, and toilet or bath rails. Consider the use of respiratory protection for cleaning staff where aerosols may be present following vomiting, or generated by cleaning activity.

9. Use an Environmental Protection Agency-approved disinfectant or a freshly prepared sodium hypochlorite solution (e.g., household chlorine bleach in a 1:100 {500 ppm} to 1:10 {5,000 ppm} dilution) to disinfect surfaces contaminated with feces or vomitus.

10. Clean carpets and soft furnishings with hot water and detergent or steam clean. Dry vacuuming is not recommended.

11. Monitor residents who require hospitalization and who die during the outbreak. Determine if the hospitalization or death was related to complications of gastroenteritis, such as dehydration, or was attributed to underlying disease.

References

Chadwick PR, Beards G, Brown D, et al. Report of the Public Health Laboratory Service Viral Gastroenteritis Working Group. Management of hospital outbreaks of gastro-enteritis due to small round structured viruses. J Hosp Infect (2000) 45: 1–10. http://www.phls.co.uk/topics_az/norwalk/hospital_srsv.pdf.

Sample Case Log of Residents with Acute Gastrointestinal Illness

Patient identification			Patient location			Illness description								Laboratory test date and results (optional)				Antiemetic	Antibiotic	Illness outcomes			
Name	Age	Sex (M/F)	Building	Unit	Room #, Bed designation	Date onset Illness	Highest temperature	Vomiting (Y/N) (Projectile (Y/N)	Nausea (Y/N)	Diarrhea (Watery (Y/N) Bloody (Y/N)	Abdominal cramps (Y/N)	Chills (Y/N)	Date Illness stopped	Stool PCR for NLV	Stool bacteria; culture	Stool O&P	Other	Date started/Date ended	Date started/Date ended	Tx for dehydration (Y/N)	Hospitalized (Y/N)	Days hospitalized	Died (Y/N, if yes, date)